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LOOSE HINTS,

AND

PROPOSITIONS.

UPON THE

ANCHOLME Drainage.

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BRITISH MUSEUM

Looſe Hints, Axioms, and Propoſitions upon Drainage.

1. A Low Tract of Land liable to Inundations is called a Fen.

2. It is alſo called a Level from the apparent Flatneſs of its Surface.

3. Scarce any Ground is ſo perfectly level as not to have ſome Fall or Deſcent.

4. The Courſe of Rivers in theſe Fens or Levels points out the Fall and proper Courſe of Drainage.

5. Rivers are ſelf-created. For Waters, either iſſuing from Springs or deſcending in Rain, by the Principles of Gravity form their Courſe thro' the loweſt Ground, (either immediately or on their ſubſiding from an Expanſion over a large Surface) and by the Force and Rapidity of their Current work their own Channels. Hence they acquire their Windings, Depth, and Name of Rivers.

6. Rivers are the Drains of all Lands high or low.

7. Rivers alſo, tho' they make and clear their own Channels, yet may be ſo choaked and obſtructed as to cauſe Inundations, loſe their old Channels, and make new ones, or join others, as the Rhine, &c.

8. Therefore in all Fenny or flat Countries they ſhould be conſtantly kept clean and open.

9. Rivers or Drains ſhould be in Proportion, not only to the common or ordinary Quantity of Water which paſſes thro' them, but alſo to any ſudden extraordinary Influxes from heavy Rains, and other Cauſes. As well might a Camel paſs or p—ſs thro' the Eye of a Needle, as that the great and mighty Waters of a Level of near 20,000 Acres (bounded by high Wolds on the Eaſt, from whence great Quantities muſt be generated from Springs, Rains, and Snow, and a Heath on the Weſt, which pours

fluent Brooks into it at every Mile, and a low moory Country for ten Miles to the South,) ſhould paſs thro' a Channel not 40 Feet wide at Top, 20 at Bottom, and ſcarce 6 Deep. For as to that ancient River, the River Ancholme, which gives Name to the Level, by a ſtrange Policy it is excluded from the Honour of having any Share in Draining its own Level, and degraded to as low or lower State than any of its once tributary Subjects.

10. When Rivers are full and overflow with any common Rain, 'tis plain they are not ſufficiently large as to either Width or Depth, and therefore ſhould be accordingly enlarged, or elſe the Huſbandman can have no Security for the Fruits of his Labour.

11. Such Land as lies ſo low, that it cannot have a Draining Channel as low as its Bottom, muſt neceſſarily become a Meer, as high as that Point from which a Run can be obtained.

12. Hence ſuch Vallies as are ſurrounded on all Sides by high Mountains, Mounds, or Banks, are generally Lakes.

13. Nevertheleſs even Meers in flat Countries, and Lakes in Mountains might be drained by Art, by raiſing the Water by Mills to ſuch high Ground from whence it would have a Fall. But in many Caſes the Expence would exceed the Benefit.

14. But common Fens or Levels have generally ſome natural Outlett.

15. If into the Sea, or a River where the Tide riſes, (which ſtopping the Courſe of the Level River and backing the freſh Water cauſes Inundation,) a Sluice muſt be built with Doors ſufficiently ſtrong to ſhut out the riſing Tide, and ſufficiently wide to let out the freſh Waters on the ebbing Tide.

16. As in this Caſe there will be a great Accumulation of freſh Water towards the Sluice, during the Flow of the Tide which ſhuts the Sluice Doors, great Care ſhould be taken to make a ſufficiently large Channel, Baſon or Reſervoir for it, which will ſoon go off on the Ebb.

17. Rivers have generally and naturally been made the Boundaries of the greater and leſſer Diviſions of Countries into Diſtricts, Counties, and Pariſhes, and are accordingly eſteemed to be of public Concern, as far as their Influences and Uſes extend, and conſequently all Charges of cleaning, repairing Banks, &c. are done at the public Expence of ſuch Diſtrict as receives any Benefit, or avoids any Evil by ſuch Works.

18. The ancient Rivers running thro' their reſpective Levels, were originally the only public Drains of thoſe Levels, and conſequently every internal Ditch in each Lordſhip were only private Canals, to ſerve both as Fences, and Conductors of their Waters to ſuch public River.

19. If then the public River or Drain is made large enough to carry off all the Water of each Man's private Property ſo as to prevent Inundations, and he has a Communication with that River, the whole Buſineſs of Drainage is effected.

20. All private Ditches and Drains in Fens will upon Examination be found to tend to and terminate in this public River or natural Drain.

21. The ancient River or Main Drain of a Level is or ought to be always either expreſſly or virtually by an Act of Drainage put under the Management, Control and Juriſdiction of Commiſſioners, and whatever *further* Works may be found neceſſary towards a GENERAL Drainage.

22. Such River ſhould by all means be adher'd to as the Main Drain of a Level upon every Principle, Philoſophical or Political; and if its Windings are not very ſudden, frequent, and much indented, the ſole Drain, (where Navigation is not concerned) as the ancient, natural, public Mother Drain.

23. If Commiſſioners ſhould totally throw ſuch River out of their Scheme of Drainage, and confine it to ſome other ſtrait Cut or Canal, infinite Inconveniences, Abſurdities, and Injuſtice would follow.

24. On ſuch a Plan ſome Lordſhips might poſſibly have no Communication from their Ditches to the new Cut, but thro' other Peoples Lands, and thoſe perhaps very high Lands, which would render their Drainage very uncertain, precarious and dependent on the Will of others.

25. The old River which was before a public Drain, and done at the Pariſh Charge or (if under an Act,) the Charge of the whole Level, would be thrown upon a private Perſon, whoſe Property unhappily and unluckily happened to lie in Frontage of it, over and above his Tax to the general Drainage.

26. If it is done by the Commiſſioners only as a Fence Ditch, the Proprietors loſe the benefit of it as a Drain, being, in the State of a Fence Ditch only, inſufficient to carry off their Waters, which enter there for that Purpoſe.

27. If another Drain is adopted in Lieu and in Excluſion of the ancient River, Communication Bridges muſt be built over the interſected Lands, to the great Expence of the Public, and the great Inconvenience of private Proprietors.

28. As the Commiſſioners of Drainage ſhould be reſtricted to the keeping in Order ſuch ancient Works as have been found, and conſequently are ſtill ſufficient for the Purpoſe of Drainage, ſo they ſhould be either by the Act or their Honour reſtricted from going beyond ſuch ſufficient public Works.

29. For if Licence or Liberty of entering into particular or internal private Works of Drainage were taken, it would not only open a door to immenſe Expences, (incompatible with Honour and Juſtice due to public Credit) but alſo to undue Partialities and conſequently the higheſt Injuſtice.

30. For unleſs the ſame Attention were paid to all, it would be partial to whom it was ſhewn, and unjuſt to whom it was denied.

31. If it unfortunately ſhould happen, that another Cut beſides the ancient River ſhould have been made towards a Drainage (as in the Ancholme Level) tho'

it might not perhaps be proper or convenient to give up the new one, yet certainly both of them might be ſufficient for a general Drainage without adopting any other private Drain into the general Works, and both might be made ſubſervient to each other by carrying off uncommon Floods, and either of them be ſufficient for common Purpoſes whilſt the other wanted Repair.

32. Where Drainage and Navigation are conjoin'd (a very flattering Idea in flat Countries, and carried on with equal Skill and Succeſs in Holland) they ſhould be carried on as Separately as poſſible in different Canals, as they certainly often claſh and interfere with one another.

33. In Works of Drainage too ſtrict an Adherence to a ſtrait Line (certainly the ſhorteſt and conſequently quickeſt for carrying off Water on a perfect Level) is often neither Philoſophical nor Oeconomical, as it often goes over high Land.

34. The Conſequence is, that it coſts a great deal to cut through that high Land to come to a level Bottom, and when it is done (as ſuch high Land is commonly ſandy) it is very apt to cave in, and conſequently ſubjects the Level to Obſtructions there and the Commiſſioners to greater Expences in removing them, when perhaps a little Deviation from that ſtraight Line would prevent both.

35. After all, whether it is not the beſt upon the whole to follow Nature as our beſt Guide correcting only her little Irregularities by the Rules of Art, and in particular by ſtraightening her Elbows for the Purpoſes of Drainage, without altering her Courſe. For though cutting a ſtraight Line upon a level Bottom from one Point to another may anſwer the Purpoſe of carrying the Water from the upper Point quicker by the ſhorter way, yet it may not anſwer ſo well the Purpoſe of carrying the Water ariſing between the Points, as by the natural Bend. And perhaps it will be found that the Windings of a River (no more than thoſe of a Road) do not differ very ma-

terially or ſo much as to Diſtance from a ſtraight Line as it may appear, or is commonly imagined.

36. 'Tis probable that in former Times, the Surface of what are now Levels was very unequal, as appears from the great Differences of Soil in them, ſome being of a moory peaty or turbery Nature to a great Depth, and others of a ſtrong Clay almoſt to the Top. The latter muſt have been ſo ab Origine, and the former adventitious and ſuper-induced by Inundations from the high Lands.

37. In their more depreſſed State they ſeem even then to have been drained, as appears from great Roots of Oaks and Firs at a conſiderable Depth, and by their Poſition ſome as they ſtood and grew, others thrown down and covered or ſunk ſeveral Feet.

38. Naturaliſts think the peaty Soil, as ariſing from putrified Vegetables, very rich when drained. For though very barren and unproductive when in a cold ſoaked State like a Sponge, they certainly bear ſurprizing Crops immediately after draining, though whether they will continue to do ſo, may be a Point of Speculation to be determined by that excellent Solver of Problems, Time.

39. 'Tis obſerved and with ſome appearance of Truth, that the Lands at the lower Part of a Level are often higher than thoſe at the upper Part, which ſeems confirmed by the ſlow and ſluggiſh Current of the Waters above, and the Rapidity of them at the Outfall. This may naturally be accounted for by the Sediment of Soil and Silt which is brought by Inundations, and ſettling at the Bottom form a kind of Bank, which ſtops all ſucceeding Subſtances, brought by Inundations, and ſo keeps accumulating and raiſing the Surface by Degrees upwards.

40. This continual Acceſſion of Surface muſt render the Drainage of Fens eaſier as it increaſes the fall; the Sea in all probability keeping within its preſcribed Bounds.

41. If the Commiſſioners neglect the main Object of their Commiſſion, viz. the providing large and ſufficient main public Drains for Drainage or in other Words carrying off all the ſuperfluous Waters of a whole Level, and deſcend into cleaning this private Ditch or Drain, and then another, what would be the conſeqence? If it is done for one, it ſhould be done for all, and then the Work would be endleſs, and the Expence beyond all poſſibility of defraying. But ſuppoſing it all done, they will only have made very fine clean Canals to no Purpoſe. For when the Floods come, they muſt overflow, and all the Huſbandman's Crops and Hopes of Subſiſtence be drowned, for want of the one Thing neceſſary, and which ſhould have been the firſt Work done, viz. a ſufficient Public Drain for carrying off the Waters.

42. If ſome ſhould complain of being far off from the River, ſo as to have a long way to carry their Waters into it, they ſhould conſider that from that Circumſtance they have more Land in the Level to be drained, and therefore it is not unjuſt or hard if they are at ſome more extraordinary private Expences on that Account. Beſides there may unfortunately be ſome little peculiar Diſadvantages and Inconveniences attending ſome Properties from their Situation, which muſt be ſubmitted to as neceſſary Evils.

43. As the ſole Buſineſs of Commiſſioners of Drainage for which they ſeem appointed is to make public Drains, Sluices, &c. and for which Purpoſes they are authorized to impoſe and appropriate public Taxes, it ſeems ſtepping out of their Province to meddle with private interior Ditches and Drains, (unleſs for a public Purpoſe) which ſhould be wholly out of their Juriſdiction and Power, as too great an Encroachment on private Rights, and the Liberty every Man has of doing what he pleaſes with his own Property ſo long as he does not injure that of another; in which Caſe the Remedy at common Law is perhaps as competent and more proper than veſting it in Commiſſioners. But their Power ſhould not extend further

further than to to compel every Proprietor to clean out his Ditches at his own Expence, on a Complaint and Proof that his Neglect injures his Neighbours, by obſtructing his Waters in their Courſe to the public Drain.

44. If, after the Commiſſioners have as they think taken Care to provide ſufficient Drains for the Diſcharge of all the Waters of a Level, and given all Proprietors a free Communication to ſuch Drains (which can only be fully and effectually done by making the Boundary River at leaſt one of them,) any Lands ſhould remain undrained notwithſtanding all Communication between them and the public Drains is perfectly clean and open, either on account of the Lowneſs of their Situation or any other Cauſe, in that Caſe it is certainly incumbent on the Commiſſioners either to erect private artificial Works of Drainage for the Relief of ſuch Lands, or to exempt them from the Tax.—For no man ſhould pay for what he does not receive.

45. The Reſult of all is, That every Commiſſioner is a public Commiſſioner for the whole Proprietary, that public Taxes are impoſed for Works of public and general, not private or particular Utility, nor can any be deemed ſuch but Locks, Sluices, and ſuch River or Drain, as the Waters of the whole Level paſs into and through, at one Point or another.

The foregoing trite Obſervations, which are literally like a Muſhroom the Production of a rainy Day, are ſet down juſt as they occurred, without Order or Ornament. Though they may contain Poſitions directly contrary to the Mode of Drainage adopted in the Ancholme Level, yet they are moſt reſpectfully ſubmitted to the conſideration of the Commiſſioners, Proprietors, Occupiers and new Surveyor of that Level.

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